

GENERAL NOTES

Journal of the Lepidopterists' Society
52(3), 1998, 338–341

EARLY STAGES OF *MYSCELIA CYANIRIS CYANIRIS* (DOUBLEDAY) FROM PANAMA (NYMPHALIDAE, NYMPHALINAE)

Additional key words: Natural History, *Adelia triloba*, Euphorbiaceae, Central America.

The genus *Myscelia* Doubleday comprises ten species that are distributed from the Southern United States to Northern Argentina (Jenkins 1984, D'Abrera 1987). In a recent systematic revision, Jenkins (1984) considered *Myscelia* closely related to the genus *Catonephele* Hübner, and he suggested that *Myscelia* butterflies oviposit on the Euphorbiaceae, thus sharing this host plant family with members of the genera *Biblis* F., *Mestra* Hübner, *Hamadryas* Hübner, *Dynamine* Hübner, *Eunica* Hübner, *Catonephele* Hübner and *Nessaea* Hübner. The three species of *Myscelia* found in Panama and Costa Rica show a color pattern common to many species in the genus: upperside iridescent blue over white bands on a brown ground color and a cryptic brown underside, with females being less brightly colored than males (see DeVries 1987).

Myscelia cyaniris cyaniris (Doubleday), has been observed to oviposit on *Dalechampia triphylla* and an unidentified canopy vine (both Euphorbiaceae) in Costa Rica (DeVries 1987). Records from Panama include *Adelia triloba* (Euphorbiaceae), from populations at Cana, Darién (field notes of the late G. Small) and Barro Colorado Island, Panama (A. Aiello, pers. com.). A pupa was found on *Croton bilbergianus* (Euphorbiaceae) at Barro Colorado Island (A. Aiello, pers. com.). As the life history, early stages and oviposition behavior of *Myscelia* butterflies are poorly known (DeVries 1987), I here describe the life cycle of *M. cyaniris cyaniris*, and provide line drawings of the head for each larval instar and photographs of the mature larva and pupa. Material described here originated from the edge of second growth forest in Soberania National Park, Panama Province, Panama, and all early stages were raised in plastic containers at ambient temperature. Although the descriptions reported here are more detailed, my observations show broad similarity to the unpublished notes on material field-reared by G. Small (lot number GS-83-51).

Oviposition behavior and host plant. On 4 November, 1994, I observed a female lay eggs on a small isolated individual of *Adelia triloba* (ca. 40 cm; Euphorbiaceae) at the edge of the forest under full sun, therefore confirming G. B. Small's host plant record. The butterfly examined the young tips of several branches before laying an egg, often leaving the plant to perch in the high branches of neighboring trees, and later returning to it. Several eggs were laid on the plant during each oviposition event, and each egg was deposited singly on the underside of young leaves and buds. Eggs also were found on a larger specimen of *A. triloba* (ca. 70 cm), located near the forest edge and surrounded by shrubby vegetation. Eggs were collected on the same two plants on 4–7 November, and 8 December, 1994.

Egg (n = 9). White; cylindrical, 0.6 mm wide and 0.6 mm tall; 11 vertical ribs; micropyle surrounded by a marked depression adorned with conspicuous vertical ribs that form a serrated "crown" approximately 0.2 mm tall.

Larva (Figures 1 and 2). *First instar* (n = 4, 2–3 days). Head beige with short, brownish primary setae; body pale green with very short, dark primary setae; larva rests on a "frass chain" at the tip of the leaf midvein with epicranium appressed to substrate. *Second instar* (n = 3, 2–3 days). Head mottled in brown and creamy white, adorned with ubiquitous small creamy-white tubercles which are slightly more prominent in the genal region of the epicranium; pair of thick, blunt scoli adorned with small tubercles, and approximately two thirds of the head height; frons with a dark medial line. Body green with short, white, tubercle-like, sub-dorsal, lateral and sub-lateral scoli; body color darker green anteriorly, fading toward posterior section of the body; ventral side yellow-green; thoracic legs brownish, abdominal prolegs yellow-green; larvae rest on a "frass chain" with epicranium appressed to substrate. *Third instar* (n = 3, 2–3 days). Head dark brown with ubiquitous small creamy-white tubercles which are slightly more prominent in the genal region of the epicranium; frons black; head scoli approximately 3.5 times longer than head height, proportionately more slender than the scoli of the second instar, the shaft of each scoli is adorned with three whorls of black spines:

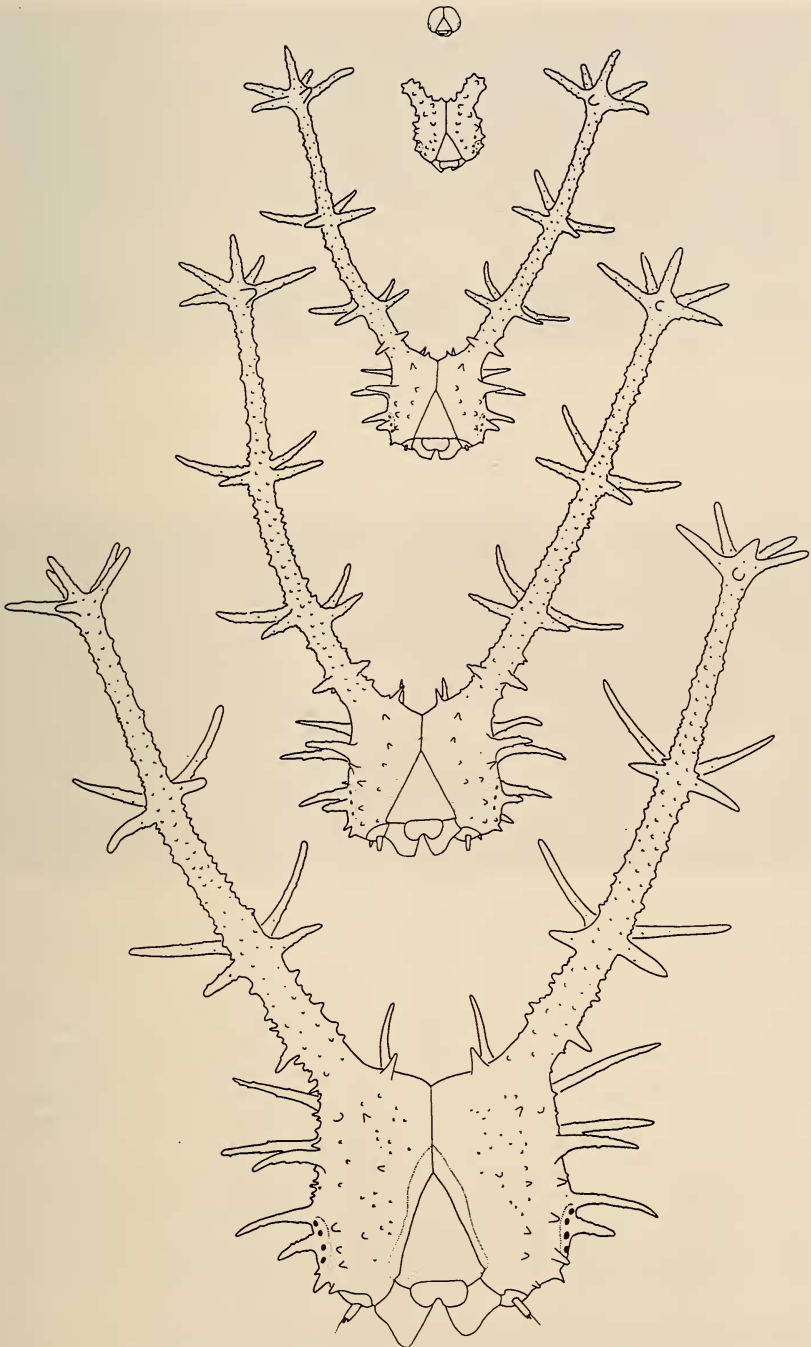


FIG. 1. Frontal view of the head capsules of *Myscelia cyaniris cyaniris* from Soberania National Park, Panama; top to bottom: first to fifth instar.



FIG. 2. Mature larva of *Myscelia cyaniris cyaniris* from Soberania National Park, Panama. FIG. 3. Pupa of *Myscelia cyaniris cyaniris* from Soberania National Park, Panama.

a six-branched whorl located at the distal tip of the scolus, a four-branched whorl located at two thirds of the length of the scolus, and a four-branched whorl located at one third of the length of the scolus, the latter is followed by a pair of smaller spines located on the anterior side near the base of the scolus; the shafts of the scoli are dark proximal to first whorl of spines and creamy-white between whorls; four pairs of post-genal whitish spines distributed from the top of the head to stemmatal region; single whitish spine below each scolus located at mid distance between base of scolus and stemmatal region. Body green with short, white, sub-dorsal, lateral and sub-lateral scoli; sub-dorsal scoli adorned with three terminal spinules in a whorl; sub-dorsal scoli on thoracic segment T3 and abdominal segments A7 and A8 arise from orange tubercles; A7 with two mid-dorsal scoli, posterior scolus larger than anterior; A8 with one mid-dorsal scolus; ventral side translucent green; legs same as in second instar; larvae no longer rest on "frass chains", resting on the leaf surface with epicranium appressed to substrate. *Fourth instar* ($n = 3$, 2-3 days). Head same as in third instar, except for the frons, which is white. Body similar to third instar; green spotted with white; color light green on the dorsal section of the body, becoming darker on the dorso-lateral and lateral sections; sub-dorsal longitudinal row of white spots giving the appearance of a white stripe to the naked eye;

thin whitish supra-spiracular stripe; ventral side translucent green; thoracic legs and abdominal pro-legs green; larvae rest on leaf surface with epicranium appressed to substrate. *Fifth instar* (n = 3, 4–7 days, Figs. 1–2). Head anteriorly black with ubiquitous small creamy-white tubercles; frons creamy-white; post-gena creamy white; red marks between occiput and base of the head scoli; head scoli approximately 2.5 times the head height; the shaft of each scolus is adorned with three whorls of black spines: a six-branched whorl located at the distal tip of the scolus, a four-branched whorl located at two thirds of the length of the scolus, and a four-branched whorl located at one third of the length of the scolus, the latter is followed by a pair of smaller spines located on the anterior side near the base of the scolus; the shafts of the scoli are dark proximal to first whorl of spines and creamy-white between whorls; spines of the proximal and medial whorls with a creamy-white transverse stripe at midlength; single lateral spine located near the base of the scoli; four pairs of large post-genal whitish spines distributed from the top of the head to stemmatal region; single whitish spine below each scolus located at mid distance between base of scolus and stemmatal region; one small whitish spine in the stemmatal region, and another immediately posterior to it. Body green spotted with white; dorsally green, dorso-laterally yellowish green; sub-dorsal longitudinal row of white spots giving the appearance of a white stripe to the naked eye; dark green stripe immediately below row of white spots; yellowish longitudinal spiracular stripe; T2–A8 with sub-dorsal scoli which are yellow at base and green distally, terminating in a whorl of three (T2, A1–7), six (T3), or four (A8) long spinules striped in black and white; T2–3 with green lateral scoli terminating in a whorl of three spinules; A2–8 with green lateral scoli adorned with two terminal spinules; A1–8 with green sub-lateral scoli with three terminal spinules; A1–6 with green mid-dorsal scoli adorned with two terminal spinules; A7 with two green mid-dorsal scoli, anterior adorned with two terminal spinules, and posterior terminating in a whorl of four spinules; A8 with thick green mid-dorsal scoli terminating in a whorl of five spinules; A10 with thick green scoli terminating in a whorl of five spinules and located laterally to the anal plate; ventral side green to blue-green; thoracic and abdominal legs green to blue-green; larvae rest on leaf surface with epicranium appressed to substrate.

Pupa (n = 2, 7–8 days, Fig. 3). Body projecting forward to attain a horizontal position. Color predominantly green with white and brown markings. Head adorned with pair of short white conical ornaments; antennae whitish; legs pale green; thoracic segments T1 and T2 predominantly dark green dorsally; T2 with a pointed keel; T3 and abdominal segment A1 pale green dorsally and dark green laterally; A4 with lateral dark green rounded markings terminating on a yellowish lateral stripe that runs at the edge of wing pad; wing pad pale green, raised posteriorly to form a ridge, which is marbled in white and brown; faint dark green dorsal midline; dorso-lateral and ventral regions of the abdomen with a whitish shade posterior to wing pad; cremaster brown.

I thank A. Aiello for providing unpublished records (Aiello Lots 83–21 and 78–106); D. Harvey for facilitating access to Gordon Small's unpublished notes housed at the Smithsonian Institution (lot numbers GS-83-51 [n = 6; 13 May, 1983], GS-83-55 [n = 2; 16 May, 1983], GS-83-56 [n = 1; 18 May, 1983], GS-83-58 [n = 2; 20 May, 1983], and GS-83-81 [n = 1; 9 June, 1983]); R. Srygley for photographing the larva and pupa; A. Aiello, P. DeVries, R. Hanner and D. Jenkins for comments on the manuscript; and P. DeVries for logistical support. Permits for collecting and exporting specimens were issued by InReNaRe through the Smithsonian Tropical Research Institute, Panama. Support for this research was provided in part by the National Science Foundation (DEB98-06779 to P. DeVries and C. Penz).

LITERATURE CITED

- D'ABRERA, B. 1987. Butterflies of the neotropical Region, Part IV. Nymphalidae. Lansdowne, Melbourne.
- DEVRIES, P. J. 1987. The butterflies of Costa Rica and their natural history. Princeton University Press, Princeton, New Jersey. 327 pp.
- JENKINS, D. W. 1984. Neotropical Nymphalidae II. Revision of *Myscelia*. Bull. Allyn Mus. 87:1–64.

CARLA M. PENZ, *Department of Biology, University of Oregon, Eugene, Oregon 97403-1210, USA*